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Indian Standard

CODE FOR
CARE, MANAGEMENT AND HOUSING OF LABORATORY ANIMALS

PART I LABORATORY MONKEYS

(First Revision)

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CODE FOR
CARE, MANAGEMENT AND HOUSING OF LABORATORY ANIMALS

PART I LABORATORY MONKEYS

(First Revision)

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Indian Standard

CODE FOR
CARE, MANAGEMENT AND HOUSING OF LABORATORY ANIMALS

PART I LABORATORY MONKEYS

(First Revision)

0. FOREWORD

0.1 This Indian Standard (Part I) (First Revision) was adopted by the Indian Standards Institution on 28 July 1978, after the draft finalized by the Live Animals Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Laboratory animals bred and maintained scientifically are necessary to get comparable results in biological experiments. This code, therefore, lays down guidelines for care, management and housing of laboratory monkeys so that a large number of animals of uniform quality is available. It is hoped that the code would streamline and step up facilities for biomedical research.

0.3 This standard was first published in 1971. In the present revision, various provisions of the standard have been reviewed thoroughly and made more comprehensive based on the experience gained in the country.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part I) prescribes optimum conditions for housing, sanitation, personnel hygiene, feeding, watering, disease control, quarantine, etc, in relation to care, management and housing of laboratory monkeys.

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*Rules for rounding off numerical values (*revised*).

2. LOCATION AND HOUSING

2.1 Animal houses should be located on dry and well drained areas free from smoke, obnoxious fumes, dust, noise or extremes of temperatures.

2.2 Animal houses should have sufficient space for service units and movement of animals and staff.

2.3 The area chosen should be maintained hygienically and should not be overcrowded.

3. CONSTRUCTION

3.1 Walls — The walls should be fire-resistant and impervious to moisture, extremes of temperature and vermin.

3.2 Interior — Interior surface should be smooth, easy to clean and impervious to hot water, disinfectants, detergents, urine, faeces and blood. Ceramic tiles or marble chips have been found to be the suitable material. The corners should be coved.

3.3 Roof — Concrete roof with adequate insulation is preferable. When the roof is made of sheets or tiles, a false ceiling which is waterproof, temperature- and vermin-proof should be provided.

3.4 Floor — The floor should be constructed of cement concrete or marble chips and should be waterproof and preferably acid-proof. The floor should be free from cracks and crevices. The junctions with walls should be coved. The floor should have slope of 8 mm per 300 mm. All drains should be either covered or underground.

3.5 Doors — Each room should have two entrance doors, one after the other with sufficient space between the two. The doors should be made of material which is moisture- and vermin-proof. Adequate latches and locking arrangement should be provided. Rooms facing each other across a corridor should not have doors opposite to each other. A metallic sheet may be provided at the lower portion of the doors in case of wooden doors.

3.6 Windows — Two sides of the room should have glass panelled windows which should be flush with the walls inside the rooms, 900 mm above the floor. The construction of windows should be such that these have wire gauze in addition to glass, so that accumulation of dust is minimized.

3.7 Air-Exhaust System — Adequate provisions should be made for exhausting the air. Openings should be vermin-proof. Their frames should be sealed and screened.

3.8 Corridor — There should be two corridors, one for carrying the clean material and the other for carrying the waste material. There should be no mixing of the two corridors. Each corridor should be 2 250 mm wide and 2 550 mm high. The corridors should be duly covered on the top and protected at the sides by wire netting to prevent ingress of vermin. The corridors should be on the outside of the walls of the rooms and provide sufficient space for movement of trolleys for carrying monkeys or equipment or both.

3.9 Change Room — Each block at its entrance should be provided with separate arrangements for toilet, shower and change of clothing.

3.10 Lighting Arrangements — There should be adequate arrangements for lighting inside the rooms. Diffused light from fluorescent fixtures gives better illumination. Lighting fixtures should be so designed that they do not afford sheltar for vermin. The switches should be kept, as far as possible, outside the room.

3.11 Environmental Control — The temperature should not be allowed to fall below 15·6°C or rise above 29·5°C (the desirable room temperature should be within the range of 27 ± 2°C). Relative humidity should be adequate to provide comfort to the monkeys, that is, 50 ± 10 percent. There should be adequate arrangements for checking the temperature and relative humidity. Radiant heat from the wall or the floor may be used for heating. Provision should be made for cooling the air during hot summer months. Ventilation should be adequate to control temperature, condensation and odours. A minimum of 10 changes of air per hour is recommended in case of air-conditioning facilities. In case of non air-conditioned rooms, continuous supply of fresh air should be provided. However, ventilation should be considered in relation to population density. Care shall be exercised to prevent draughts on the animals.

3.12 Group Caging — The monkeys up to 3 kg trapped together may be kept in gang cages. It shall, however, be ensured that each monkey weighing about 3 kg should be provided a minimum of 1·5 cubic metres of air space. The number of monkeys in a cage should not exceed 10.

3.13 Rooms for Cages — Though density of monkeys per room is difficult to specify, no room should have more than sixty single cages. Double tiering of cages may be provided if observation and cleaning procedures are not restricted. Triple tiering shall not be done.

4. EQUIPMENT

4.1 Cages — The size of the cage should be such as to give sufficient room for the movement of animals. It should enable easy handling of the monkeys. The sizes for the cages for monkeys shall be as given in Table 1.

A suitable squeeze-back should be provided in each cage in order to facilitate the handling of monkeys.

TABLE 1 DIMENSIONS OF CAGES

MASS OF MONKEY	OVERALL SIZE OF CAGE*			NUMBER OF ANIMALS
	Width (*A*)	Depth (*B*)	Height (*H*)	
(1)	(2)	(3)	(4)	(5)
kg	mm	mm	mm	
Up to 3	600	450	600	2
Above 3 up to 6	600	600	750	1
Above 6 up to 10	750	750	900	1
Above 10	900	750	1 250	1

**See* Fig. 1.

4.1.1 The cages should be made of galvanized steel or aluminium alloy to ensure resistance to rust and corrosion. These should be non-toxic and sufficiently hard and resilient to contain the caged monkey. The top, bottom and the two sides, that is, front and rear should be made of strong and heavy welded wire-mesh. The sides adjacent to other cages should be of metal sheeting.

4.1.2 A minimum of 200 mm floor clearance between the floor and the lowest horizontal element of cage should be provided.

4.1.3 The floor of the cage should have a minimum wire spacing of 22 × 22 mm to allow the faeces to fall into the waste pan.

4.1.4 The cage surface shall be so finished as to eliminate completely sharp edges and burrs to avoid injury to animals or personnel.

4.1.5 Spot welding shall ensure complete union of the metals joined, in order to eliminate weld breaks.

4.1.6 A sliding access door with a door latch should be provided in the front. A typical cage showing an automatic watering device and feed container is shown in Fig. 1.

4.1.7 The cages should be either anchored to the wall or placed over sliding racks or trolleys.

4.2 Feed-Containers — Feed containers should be made of material capable of being cleaned and sterilized. Food should be easily accessible to the animals and kept at a place where the animal may reach it easily without spoiling it.

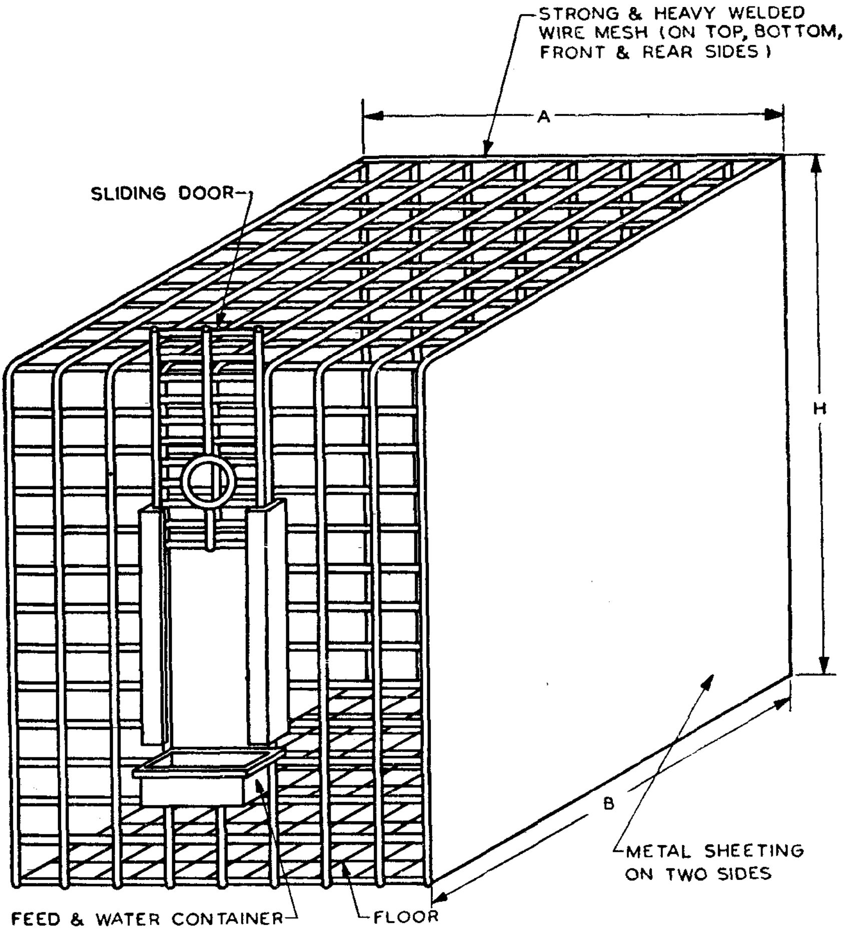
STRONG & HEAVY WELDED WIRE MESH (ON TOP, BOTTOM, FRONT & REAR SIDES)
A
SLIDING DOOR
H
B
METAL SHEETING ON TWO SIDES
FEED & WATER CONTAINER
FLOOR

FIG. 1 A TYPICAL CAGE

4.3 Water should be provided either through an automatic system using nipples or in unbreakable water containers attached securely to each cage.

4.4 Catching Boxes — The cages should have a drawing grill sliding inside the cage so that the animals may be handled without any injury by the animals. It should be of the size of approximately 600 × 600 × 600 mm with sliding doors at each end.

4.5 Wooden Board — If a wooden board is fitted for the monkeys to sit and sleep on, it should be sufficiently high so as to allow sanitation.

5. FOOD

5.1 The food shall be free from important primate pathogens, zoonoses and vermin. It shall be handled and maintained in a clean condition. It should also be free from additives like drugs, hormones, antibiotics and other substances which may create abnormal physiological conditions. The food should be prepared and stored in a separate room. Fruits, such as apples, oranges and *BAEL* should be fed to monkeys at least twice a week. It is recommended that a balanced monkey feed formulation with appropriate quantity of Vitamin C should be fed to monkeys. Due to instability of ascorbic acid, commercial feed should be properly stored and the date of manufacture shall be denoted on the bags to ensure that fresh feed is given. Feeding schedule should be such that monkeys are fed at least twice a day, that is, at 0 800 h and at 1 600 h. Grains, such as gram, barley, paddy and corn may be fed if no suitable monkey feed is available. Compounded monkey diet, if available, should be provided.

6. DISEASE AND PARASITE CONTROL PROCEDURES

6.1 Quarantine — All monkeys brought in animal houses should be maintained in quarantine before being permitted in the animal house. As the monkeys are caught in a wild state, they are likely to carry many ecto- and endo-parasites and viruses. They should, therefore, be quarantined till the tests to clear them of infections are completed. All monkeys in one quarantine area should remain in quarantine for the full period of the last monkey introduced in that area.

6.2 Isolation — Sick monkeys should be kept in isolation and should not be allowed to come in contact with healthy monkeys.

6.3 Adequate veterinary facilities should be made available and suitable records be maintained for the same.

7. PERSONNEL

7.1 The persons entering the animal room should be free from diseases and should wear clean and washed clothes. They should be periodically checked for any sign of communicable diseases.

7.2 The staff responsible for the care of animals in quarantine should not be permitted to handle animals in other colonies.

7.3 The personnel should be conveniently placed to be readily available.

8. CLEANING, STERILIZATION AND DISPOSAL

8.1 Cleaning of the Animal House — The animal house should have adequate water supply, sterilizing and washing facilities. The material from animal rooms should be sterilized and then washed, dried and transferred to the rooms.

8.2 Cleaning of Cages — The cages should be cleaned and sterilized before use and re-use.

8.3 Disposal of Dead Bodies — There should be adequate arrangements to incinerate the dead animals.

9. ANIMAL HOUSE INCHARGE

9.1 The animal house should be under the charge and care of a qualified veterinarian.

10. RECORDS

10.1 Suitable records pertaining to the provisions of this code should be maintained.

(*Continued from page* 2

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INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	CONVERSION
Force	newton	N	1 N = 0·101 972 kgf
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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